

What is claimed is:

1. A device for organ manipulation comprising:
a housing having a top surface; and
at least one portion of the housing being adapted for adherence to any
5 surface of any organ, whereby the at least one portion of the housing adheres
the device to the organ and whereby the device can be used to lift, position,
move and otherwise manipulate the organ.
- 10 2. The device of claim 1, wherein the at least one portion of the housing is
adapted for adherence to any ventricular surface of the heart.
3. The device of claim 1, wherein the housing further comprises side
portions extending from the top surface.
- 15 4. The device of claim 3, wherein the side portions of the housing comprise
the at least one portion of the housing adapted for adherence to any surface of
an organ.
- 20 5. The device of claim 1, wherein the housing further comprises one or
more flanges extending from the top surface, the one or more flanges adapted
for adherence to any surface of an organ.
- 25 6. The device of claim 3, wherein the housing further comprises one or
more flanges extending from the side portions, the one or more flanges adapted
for adherence to any surface of an organ.
7. The device of claim 1, further comprising one or more apertures in the
housing through which a source of differential pressure may be used in
connection with the housing, whereby the source of differential pressure assists
30 the housing in adhering to the organ.
8. The device of claim 1, wherein the top surface of the housing has an
overall bowtie shape.

9. The device of claim 1, wherein the top surface of the housing has an overall multi-arm shape.
10. The device of claim 1, wherein the top surface of the housing has a flat, elongate shape and wherein the housing further comprises a bottom surface and at least one aperture in the bottom surface of the housing.
11. The device of claim 10, further comprising at least one flange surrounding the at least one aperture in the bottom surface of the housing.
12. The device of claim 7, further comprising protrusions or ribs positioned within the housing, wherein the protrusions or ribs prevent the organ from blocking the aperture or being pulled into the one or more apertures.
13. The device of claim 7, further comprising a screen or porous material positioned within the housing over the one or more apertures.
14. The device of claim 1, further comprising protrusions or ribs positioned within the housing, wherein the protrusions or ribs prevent the organ from being adhered to inside of the housing and promotes adherence along the outer perimeter of the housing.
15. The device of claim 1, wherein at least two portions of the housing are adapted for adherence to any surface of an organ such that the at least two portions form multiple, independent seals on the organ surface.
16. The device of claim 15, wherein the at least two portions comprise multiple side portions extending from the top surface.
17. The device of claim 15, wherein the at least two portions comprise multiple flanges extending from the top surface or from side portions that extend from the top surface.

18. The device of claim 15, further comprising one or more apertures in the housing through which a source of differential pressure may be used in connection with the housing, whereby the source of differential pressure assists the housing in adhering to the organ.

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19. The device of claim 18, wherein the one or more apertures are positioned such that each multiple, independent seal formed by the at least two portions is assisted by the differential pressure source.

10 20. The device of claim 19, wherein the differential pressure provided to each multiple, independent seal is independent of the differential pressure provided to the other multiple, independent seals.

15 21. The device of claim 20, wherein the independent differential pressure is provided by multiple independent sources of differential pressure.

22. The device of claim 20, wherein a single source of differential pressure provides each multiple, independent seal with differential pressure and wherein the differential pressure provided to each seal is made independent by
20 positioning valves in line with each aperture.

23. The device of claim 20, further comprising a parent tube or lumen extending from the differential pressure source and independent daughter tubes or lumens extending from the parent tube to each aperture.

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24. The device of claim 23, wherein a single source of differential pressure provides each multiple, independent seal with differential pressure and wherein the differential pressure provided to each seal is made independent by making the diameter of each daughter tube less than the diameter of the parent tube.

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25. The device of claim 24, wherein the diameter of the parent tube is at least double the diameter of each daughter tube.

26. The device of claim 3, wherein the side portions extend vertically downwards from the top surface and are formed with a thinness that promotes maintenance of seal as the organ and/or device deforms during manipulation.

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27. The device of claim 3, wherein the side portions extend at an angle from the top surface, wherein the angle promotes flaring out of the side portions on the organ surface.

10 28. The device of claim 27, wherein the side portions extend from the top surface at an angle of at least about 5°.

29. The device of claim 3, wherein the side portions extend from the top surface at an angle of from about 5° to about 15°.

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30. The device of claim 1 further comprising at least one reinforcing member within the housing, wherein the reinforcing member is malleable.

20 31. A device for attachment to an organ, whereby the organ can be manipulated by the device, wherein the device comprises a housing designed to flatten on the organ surface, thereby enhancing the strength of attachment between the device and the organ.

25 32. A device for attachment to an organ, whereby the organ can be manipulated by the device, wherein the device comprises a housing designed to maximize the surface area of the housing on the organ when adhered to the organ.

30 33. A device for attachment to an organ, whereby the organ can be manipulated by the device, wherein the device forms multiple, independent seals on the organ surface.

34. The device of claim 1, further comprising a gel or flexible film coated on the at least one portions of the housing adapted for adherence to any surface of any organ, whereby the gel or flexible film enhances the adherence of the device to the organ.

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35. The device of claim 1, further comprising a gel or flexible film within the housing, whereby, as the housing is applied to an organ surface, the gel or flexible film is released from the housing to the at least one portions of the housing adapted for adherence to any surface of any organ.

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36. The device of claim 1, further comprising an attachment mechanism extending from the top surface of the housing, wherein the attachment mechanism can be held manually or attached to a holding mechanism during use.

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37. The device of claim 36, wherein the attachment mechanism is flexible along its length, whereby the flexibility along the length of the attachment mechanism allows energy absorption and multidirectional movement of the housing as the organ moves.

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38. The device of claim 36, whereby the attachment mechanism has at least a ribbed portion along its length.

39. The device of claim 1, wherein the housing includes at least two ends and wherein the device further comprises a spreading mechanism for moving the ends of the housing away from each other.

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40. The device of claim 39, wherein the spreading mechanism comprises a hinge located between the ends.

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41. The device of claim 39, wherein the spreading mechanism comprises at least two extensions from the housing that can be pushed to spread the ends of the housing away from each other.

42. The device of claim 1, wherein the housings has a length ranging from about 0.5" to about 3".

5 43. The device of claim 1, wherein the housings has a width ranging from about 0.25" to about 1".

44. The device of claim 1, wherein the housings has a thickness ranging from about 0.2" to about 0.5".

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45. The device of claim 1, wherein the housings has a height ranging from about 0.20" to about 0.50".

15 46. The device of claim 5, wherein the one or more flanges has a thickness ranging from about 0.005" to about 0.020".

47. The device of claim 5, wherein the one or more flanges has a length ranging from about 0.05" to about 0.5".

20 48. The device of claim 1, further comprising a connection mechanism, whereby the connection mechanism attaches the device to a holding mechanism during use.

25 49. The device of claim 48, wherein the connection mechanism is mounted on an attachment mechanism that extends from the top surface of the housing.

30 50. The device of claim 49, wherein the attachment mechanism is flexible along its length, whereby the flexibility along the length of the attachment mechanism allows energy absorption and multidirectional movement of the housing as the organ moves.

51. The device of claim 50, whereby the attachment mechanism has at least a ribbed portion along its length.

52. The device of claim 48, wherein the connection mechanism comprises a ring-type connector that is mounted on the housing and is capable of rotating with respect to the housing.

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53. The device of claim 52, wherein the connection mechanism further comprises a bushing, whereby the bushing is mounted on the housing and the ring-type connector is mounted on the bushing and whereby the bushing and ring-type connector are capable of rotating with respect to each other.

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54. The device of claim 53, wherein the ring-type connector includes at least one groove along its inner surface and the bushing includes at least one protrusion, whereby the at least one protrusion fits within the at least one groove to prevent rotational movement between the ring-type connector and bushing.

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55. The device of claim 54, wherein the ring-type connector and bushing are capable of rotational movement with respect to each other until a sufficient downward force is applied to the housing and connection mechanism.

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56. The device of claim 55, whereby upon removal of the sufficient downward force, the one or more protrusions are released from the one or more grooves such that the ring-type connector and bushing can rotate with respect to each other.

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57. A method for the manipulation of an organ, comprising *the steps of*:

(a) providing a device comprising:

a housing having a top surface; and

at least one portion of the housing being adapted for adherence to any surface of any organ;

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(b) positioning the at least one portion of the housing on the organ surface;

- (c) adhering the at least one portion of the housing to the organ surface; and
- (c) using the device to lift, position, move and otherwise manipulate the organ.

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58. The method of claim 57, wherein the device further comprises side portions extending from the top surface and the steps of (b) positioning the at least one portion of the housing on the organ surface and (c) adhering the at least one portion of the housing to the organ surface comprise positioning and
10 adhering the side portions to the organ surface.

59. The method of claim 57, wherein the device further comprises side portions extending from the top surface and one or more flanges extending from the side portions and the steps of (b) positioning the at least one portion of the
15 housing on the organ surface and (c) adhering the at least one portion of the housing to the organ surface comprise positioning and adhering the one or more flanges to the organ surface.

60. The method of claim 57, wherein the device further comprises one or
20 more apertures in the housing through which a source of differential pressure may be used in connection with the housing, and whereby the step of (c) adhering the at least one portion of the housing to the organ surface includes applying the source of differential pressure through the aperture to assist the housing in adhering to the organ.

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61. The method of claim 57, wherein the device includes at least two portions of the housing adapted for adherence to any surface of an organ, and whereby the steps of (b) positioning the at least one portion of the housing on the organ surface and (c) adhering the at least one portion of the housing to the organ
30 surface comprise positioning each portion of the housing on the organ and adhering each portion of the housing to the organ to form multiple, independent seals by each portion on the organ surface.

62. The method of claim 61, wherein the device further comprises one or more apertures in the housing through which a source of differential pressure may be used in connection with the housing and wherein the method further comprises application of independent differential pressure to each multiple,
5 independent seal.

63. The method of claim 57, wherein the steps of (b) positioning the at least one portion of the housing on the organ surface and (c) adhering the at least one portion of the housing to the organ surface further comprise flattening or
10 flaring out the housing on the organ surface.

64. The method of claim 57, wherein the device further comprises an attachment mechanism extending from the top surface of the device, wherein the attachment mechanism is flexible along its length, and whereby the method
15 further comprises allowing the attachment mechanism to absorb energy and allow multidirectional movement of the housing as the organ and/or device moves.

65. The method of claim 64, wherein the device further comprises a
20 connection mechanism that mounts on the attachment mechanism, the connection mechanism being rotatable with respect to the housing, and whereby the method further comprises mounting the device to a holding mechanism in the surgical field via the attachment mechanism and connection mechanism.

25 66. The method of claim 65, whereby the step of (b) positioning the at least one portion of the housing on the organ surface includes rotating the housing with respect to the connection mechanism.

30 67. The method of claim 65, wherein the connection mechanism includes a mechanism for preventing rotational movement between the housing and the connection mechanism upon the application of a sufficient downward force, and the method further comprises the steps of after (c) adhering the at least one

portion of the housing to the organ surface, providing a sufficient downward force to prevent rotational movement between the housing and the connection mechanism.

- 5 68. The method of claim 67, wherein the method further comprises removing the application of a sufficient downward force to allow rotational movement between the housing and the connection mechanism, rotating of the housing with respect to the connection mechanism to reposition the organ and, optionally, providing a sufficient downward force to prevent further rotational
10 movement between the housing and the connection mechanism.